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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NOLAN, DANIEL A

ART UNIT

PAPER NUMBER

2654

DATE MAILED: 04/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

911

Office Action Summary

Application No.

09/630,356

Applicant(s)

YAMADA, MASAYUKI

Examiner

Daniel A. Nolan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-10,12-16 and 18-48 is/are rejected.
- 7) ☒ Claim(s) 5,11,17 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:
 - Figure 13 items S1304, S1305 & S1309; and
 - Figure 14 items S1407, S1408 & S1409 are not mentioned in the specification.
2. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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4. The abstract of the disclosure is objected to because:

- The first letter "N" should be removed, having the abstract begin with the word "Speech" so as to avoid requiring reference to the details of the specification.

Correction is required. See MPEP § 608.01(b).

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested:

"Speech Synthesis using Multi-Mode Coding with a Speech Segment Dictionary".

6. The disclosure is objected to because of the following informalities:

- The summary of the invention is not a summary at all, but amounts to a mere recitation of the claims that is contrary to the spirit and intent of CFR § 1.73:

"Summary of the invention: A brief summary of the invention indicating its nature and substance, which may include a statement of the object of the invention, should precede the detailed description. Such summary should, when set forth, be commensurate with the invention as claimed and any object recited should be that of the invention as claimed."

Permitting this cosmetic makeover of the claims to be considered as part of the disclosure would amount to having the claims provide the only specification for themselves. Such invalid circular reasoning cannot be allowed.

Appropriate correction is required.

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7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- *Setting encoding methods* is not mentioned in the specification other than in the summary, which cannot stand for the reasons cited above.
- The Examiner is proceeding with the understanding that *setting* is the unavoidable consequence of *selecting* and that the terms are therefore to be considered synonymous as used in the claims.

Claim Objections

8. Claims 1, 5, 11, 17 & 23 are objected to because of the following informalities:

- Line 9 of claim 1 should begin with "an".
- Claims 5, 11, 17 & 23 should be followed by language making it plain that the features are not to be taken as alternatives.
- The Examiner is proceeding with the understanding that further explanations such as "..., all of which are present and coexist in order that proper selection may be made." are appended to the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Gasper et al

10. Claims 1-4, 6-10, 12-16, 18-25, 27, 30, 32, 35, 37, 40 & 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gasper et al (U.S. Patent 5,278,943).

11. Regarding claims 1, 7, 13 & 19 and 25, 30, 35 & 40 as understood by the Examiner, Gasper et al addresses the features in *generating speech segment dictionary of selecting an encoding method from a plurality* by teaching the necessity of supporting different representations and encoding methods (column 6 lines 30-32) along with the well-known processes of *encoding speech and storing in a speech segment dictionary* (column 2 line 64-on) pertaining to claims 1 and 7.

With respect to the feature of claims 25, 30, 35 & 40, *setting encoding methods* is well-known to be such an obvious consequence of *selecting* that, without antecedence indicating otherwise, as to have the terms be synonymous.

In further regard to claims 13, 19, 35 & 40, the steps of *selecting a decoding method for a speech segment read out from the speech segment dictionary* (column 11

line 50-on) for *decoding* (column 6 to line 5) while the *step of synthesizing speech on the basis of the decoded speech segment* is taught (in column 5 to line 5).

12. Regarding claims 2, 8, 14 & 20; the claims are set forth with the same limits as claims 1, 7, 13 & 19, respectively. It is well-known and would be obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that *encoding methods would differ in the number of quantization steps* and that a decision process would include consideration of the cost of supporting the method as the number of steps required would indicate.

13. Regarding claims 3, 9, 15 & 21; the claims are set forth with the same limits as claims 1, 7, 13 & 19, respectively. It is well-known and would be obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that *encoding methods would be expected to differ with regard to their respective quantization code book* as one of the distinguishing features, and that the decision to employ that method would consider the completeness of the codebook as well as the cost of supporting it.

14. Regarding claims 4, 10, 16 & 22; the claims are set forth with the same limits as claims 1, 7, 13 & 19, respectively. It is well-known and would be obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that *encoding methods would be expected to differ with regard to their encoding scheme by*

definition, and that the decision to employ that method would consider the robustness of the scheme as well as the expense of supporting it.

15. Regarding claims 6, 12, 18, 24, 27, 32, 37 & 42; the claims are set forth with the same limits as claims 1, 17, 13, 19, 25, 30, 35 & 40, respectively. Gasper et al teaches the well-known practice *that some speech segments are not encoded* (column 6 line 38).

By also recognizing that *the type of the speech segment is a plosive* (column 4 line 34) Gasper et al would have also made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that such would be a determining factor as to whether to forego coding (or not).

Gasper et al & Swaminathan et al

16. Claims 26, 28-29, 31, 33-34, 36, 38-39, 41 & 43-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gasper et al in view of Swaminathan et al (U.S. Patent 5,751,903).

17. Regarding claims 26, 31, 36 & 41; the claims are set forth with the same limits as claims 25, 30, 35 & 40, respectively. Gasper et al teaches that *plosives* are an instrumental component of speech (column 4 line 34) followed by an explanation of the importance of carrying features through prosody. As then indicated in response to coding by any of several methods, the corresponding decoding operation is conducted

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(figure 4), which disclosures would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention.

Where Gaspar et al does not indicate that the coding mode would *change for the speech segment in accordance with whether the type of the speech segment is a plosive or not*, Swaminathan et al does (column 14 line 60-on), making it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that, when multiple types are available the coding should change to be appropriate for each segment.

18. With regard to claims 28, 33, 38 & 43, the claims are set forth with the same limits as claims 25, 30, 35 & 40, respectively. Gaspar et al claims distinguishing coding for *unvoiced sound* (claim 9) while Swaminathan et al names the different modes according to *unvoiced* (figure 2), which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that coding modes should change to be appropriate for each segment.

19. With regard to claims 29, 34, 39 & 44, the claims are set forth with the same limits as claims 25, 30, 35 & 40, respectively. Gaspar et al discloses separate processing for *nasal sound* (column 15 line 2) while Swaminathan et al indicates that the that the coding mode would *change for the speech segment*, making it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention that coding modes should switch as appropriate for each segment.

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20. Regarding claims 45, 46, 47 & 48; the claims are set forth with the same limits as claims 1, 13, 25 & 35, respectively. It is well-known in the field of speech signal processing that every practicable computer includes a *storage medium storing a control program for allowing a computer to realize the speech information processing method* as the practical alternative to a software program could not be effectively maintained were the control to be embedded in the hardware as is frequently appropriate for those less complex and more stable applications than speech processing.

Allowable Subject Matter

21. Claims 5, 11, 17 & 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter:

- The common feature of claims 5, 11, 17 & 23 is phrased so as to preclude a simple alternative between the methods named in the claim. Consequently, the Examiner is proceeding with the understanding that the claims require:
 - That the invention has the capability of performing all cited methods, and
 - That the choice is made to implement one of those available methods.

- Regarding claims 5, 11, 17 & 23 as understood by the Examiner, where multi-code methods do conventionally support a plurality of encoding schemes, the feature that simultaneously supports the *mu-law scheme, scalar quantization, and linear predictive coding encoding methods* is neither anticipated nor was it found in obvious combination in the prior art of record.

23. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Gao (U.S. Patent 6,173,257) maintains codebooks for multiple encoding methods.
- Zinser et al (U.S. Patent 5,073,940) teaches *scalar quantization and linear predictive coding as encoding methods* in combination but not singly and in the alternative, and only mentions the *mu-law scheme* in conjunction with the CCITT standard.
- Massaloux (U.S. Patent 5,704,002) employs different coding modes to suit the signal character.

- Sagisaka ("Speech Synthesis from Text", IEEE Communications Magazine, Jan. 1990) employs a segment dictionary to formulate pronunciations.

25. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel A. Nolan at telephone (703) 305-1368 whose normal business hours are Mon, Tue, Thu & Fri, from 7 AM to 5 PM.

If attempts to contact the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached at (703) 305-4379.

The fax phone number for Technology Center 2600 is (703) 872-9314. Label informal and draft communications as "DRAFT" or "PROPOSED", & designate formal communications as "EXPEDITED PROCEDURE".

Formal response to this action may be faxed according to the above instructions, or mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or hand-delivered to:

Crystal Park 2,
2121 Crystal Drive, Arlington, VA,
Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 Customer Service Office at telephone number (703) 306-0377.

Daniel A. Nolan
Examiner
Art Unit 2654

dan
April 18, 2002


Richmond Dorvil
Primary Examiner